

Attorney Docket No. 06620-026001
Application No. 09/771,146
Amendment dated May 7, 2004
Reply to Office Action dated December 10, 2003

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (currently amended) A system, comprising:

an endoscope section, having an image receiving portion at an area thereof, which image receiving portion receives an optical image, and transmits the optical image to another portion thereof;

a sleeve assembly, sized to cover said endoscope section and extending along an axis, and having an optical element which includes a mirror which forms a fixed angle relative to an axis of said sleeve assembly and further comprising an additional sleeve assembly with an additional mirror that forms a different fixed angle relative to the axis of said sleeve assembly which changes a direction of light coming from an outside said sleeve assembly, and directs light to said image receiving portion of said endoscope section from the area outside said sleeve assembly;

a rotatable connection between said sleeve assembly and said endoscope section, wherein said sleeve assembly can be rotated relative to said endoscope section to adjust an orientation of an image being acquired; and

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an orientation part, which is viewable from an outside of
said sleeve assembly, and which indicates an orientation of
rotation of said sleeve assembly.

2.-7. (canceled)

8. (previously presented) A system as in claim 1,
further comprising a plurality of additional sleeve assemblies,
each having a different mirror angle, forming a set.

9. (original) A system as in claim 1, further comprising
a rotatable connection between said sleeve assembly and said
endoscope section, wherein said sleeve assembly can be rotated
relative to said endoscope section to adjust an orientation of
an image being acquired.

10. (original) A system as in claim 9, further comprising
an orientation part, which is viewable from an outside of said
sleeve assembly, and which indicates an orientation of rotation
of said sleeve assembly.

11. (original) A system as in claim 9, wherein said
rotatable connection includes an O-ring.

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12. (original) A system as in claim 1, wherein an outer surface of said endoscope section is smaller than an inner surface of said sleeve assembly, defining a cavity between said endoscope section and said sleeve assembly.

13. (previously presented) A system as in claim 12, further comprising spacing elements, located in said cavity, and holding said endoscope section at a specified orientation within said cavity.

14. (original) A system as in claim 12, further comprising a connection to said cavity.

15. (original) The system as in claim 14, further comprising a fluid source, connected to supply fluid to said cavity through said connection.

16. (original) A system as in claim 12, wherein an outlet of said cavity opens near said optical element.

17. (original) A system as in claim 15, wherein an outlet of said cavity opens near said optical element, and is located

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such that fluid supplied to said cavity is also supplied to said optical element.

18. (original) A system as in claim 1, further comprising a video element, operating based on video from said endoscope section.

19. (original) A system as in claim 18, wherein said optical element includes a mirror, and said video element electronically mirror-inverts at least a portion of an image obtained from said endoscope section.

20. (original) A system as in claim 18, further comprising an extension cable, coupled at one end to said endoscope section and at another end to said video element.

21. (original) A system as in claim 18, further comprising an illumination part, coupled to provide illumination to an area of imaging.

22. (original) A system as in claim 18, wherein said video element also includes an image processing system which selectively rotates said image.

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23. (original) A system as in claim 18, wherein said video element also includes a dual display part, which simultaneously allows displaying multiple images.

24. (original) The system as in claim 23, wherein said multiple images are images obtained at different times.

25. (original) The system as in claim 23, wherein said multiple images are images obtained simultaneously.

26. (original) A system as in claim 23, further comprising a text generator, which produces a textual display indicative of parameters being sensed.

27. (original) A system as in claim 1, wherein said endoscope section is formed of an optical waveguide.

28. (original) A system as in claim 1, wherein said endoscope section is formed of an electrical cable, and a camera receiving optical information near said image receiving portion of said endoscope.

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29. (original) A system as in claim 27, wherein said optical waveguide includes an optical fiber.

30. (original) A system as in claim 1, wherein said endoscope section has a substantially rounded end.

31. (previously presented) A system as in claim 1, wherein said endoscope section has a substantially flat end.

32. (original) A system as in claim 20, wherein said endoscope section is formed of an optical waveguide.

33. (original) A system as in claim 32, further comprising a connector part, connecting between said endoscope section and said extension cable.

34. (original) A system as in claim 33, wherein said connector part has inner surfaces which align said endoscope section with said extension cable.

35. (original) A system as in claim 34, wherein said sheath has an expanded area in the vicinity of said connector

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part, with inner surfaces which are sized to accept said connector part.

36. (original) A system as in claim 35, wherein said sheath is rotatable relative to said connector part.

37. (original) A system as in claim 1, further comprising a first window portion defined in said sleeve assembly.

38. (previously presented) A system as in claim 37, wherein said sleeve assembly is formed of an optically non-clear material, and said window is formed to allow light to pass through said window portion in said sleeve assembly.

39. (original) A system as in claim 37, wherein said optical element is configured to reflect light to substantially an entire part of said endoscope section.

40. (original) A system as in claim 37, wherein said optical element is configured to reflect light to only a portion of said endoscope section.

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41. (original) A system as in claim 40, further comprising a second window portion, formed in a different area than said first window portion.

42. (original) A system as in claim 41, wherein incoming light from said first window portion is coupled to said optical element, and incoming light from said second window portion is not coupled to said optical element.

43. (original) A system as in claim 42, wherein said optical element includes a mirror, and said second window portion is formed in an area which is axially adjacent said endoscope section, and incoming light from said second window portion is coupled directly to said second window section without being reflected by said mirror.

44. (original) A system as in claim 42, further comprising displaying images from both said first window portion and said second window portion.

45. (original) A system as in claim 42, wherein said optical element includes a mirror, and further comprising an image processor that mirror-inverts said images from said first

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window portion, but does not mirror-invert said images from said second window portion.

46. (original) A system as in claim 45, further comprising displaying simultaneously the images from the first window portion and from said second window portion.

47. (original) A system as in claim 1, further comprising a surgical tool, coupled to said sheath.

48. (original) A system as in claim 47, wherein said tool includes a forceps.

49. (original) A system as in claim 1, further comprising an illumination element, providing illumination to an area being imaged.

50. (original) A system as in claim 49, wherein said illumination element comprises an optical waveguide.

51. (original) The system as in claim 49, wherein said sheath is formed of optically transparent material with

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reflective coatings, and said illumination is coupled to said optically transparent material.

52. (original) A system as in claim 51, further comprising an opening in the reflective coatings in an area of the area being imaged.

53. (original) A system as in claim 52, wherein said opening is an annular opening.

Claim 54 (canceled)

55. (currently amended) An assembly, comprising:
an endoscope part, having a first portion adapted to receive optical energy, and a second portion adapted to supply information indicative of the optical energy;

a first sheath, extending generally along an axis, and having an inner surface which is sized to be larger than an outer surface of said endoscope part, and located around said endoscope part, said sheath having an optical window located in a location which forms a predetermined fixed non-zero degree angle with said axis, and having an optical portion located to

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change a direction of incoming optical energy from said optical window to the direction of said axis; ~~and~~

an assembly wherein said optical element is a mirror that forms a first fixed angle relative to said axis, to thereby reflect optical energy from a specified viewing area to said optical axis, further comprising at least one additional sheath, having a mirror which forms a fixed angle which is different than said first fixed angle, and which can be used with said endoscope part;

a rotatable connection between said first sheath assembly and said endoscope port, wherein said sheath assembly can be rotated relative to said endoscope port to adjust an orientation of an image being acquired; and

an orientation part, which is viewable from an outside of said first sheath, and which indicates an orientation of rotation of said first sheath.

56.-60. (canceled)

61. (original) An assembly as in claim 55, further comprising a cavity formed in said sheath, said cavity receiving irrigation fluid.

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62. (original) An assembly as in claim 61, wherein said cavity includes an opening near said optical element, such that said irrigation fluid washes across a surface of said optical element.

63. (original) An assembly as in claim 55, wherein said endoscope part includes an optical waveguide.

64. (original) An assembly as in claim 55, wherein said endoscope part includes a camera, and an electrical wire receiving electrical signals from said camera.

65. (original) An assembly as in claim 55, further comprising a video section, receiving said information indicative of the optical energy.

66. (original) An assembly as in claim 65, wherein said video section includes an image processor which processes information indicative of the optical energy as an image.

67. (original) An assembly as in claim 66, wherein said optical element is an element that inverts an image, and said

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image processor includes an image inversion element which inverts said image.

68. (original) An assembly as in claim 55, wherein said optical element couples said incoming optical energy to only a portion of said endoscope part.

69. (original) An assembly as in claim 68, wherein another portion of said endoscope part receives incoming optical energy indicative of another view.

70. (previously presented): An assembly as in claim 55, further comprising means for illuminating an area of viewing.

71. (original) An assembly as in claim 70, wherein said sheath is formed of optically transparent materials, and said illuminating comprises illuminating said area via said optically transparent materials.

72. (currently amended) A method, comprising:
obtaining an optical image using an endoscope; and
mirror inverting at least a portion of said image, further comprising varying an angle from which said optical image is

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obtained wherein said varying comprises using a different mirror
in a different fixed location to obtain said optical image from
a different angle;

allowing rotation between said mirror assembly and said
endoscope, to adjust an orientation of an image being acquired;
and

providing an orientation part, which is viewable from an
outside, and which indicates an orientation of rotation of said
mirror.

73.-75. (canceled)

76. (original) A method as in claim 72, wherein said
mirror inverting comprises inverting an entire optical image.

77. (original) A method as in claim 72, further comprising
obtaining another optical image using the endoscope, and wherein
said mirror inverting comprises inverting only said optical
image, and not said another optical image.

78. (original) A method as in claim 72, wherein said
obtaining comprises obtaining optical energy indicative of an

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image, and using an optical waveguide to couple said optical image.

79. (original) A method as in claim 72, wherein said obtaining comprises using a camera in said endoscope to obtain electrical energy indicative of an image, and using an electrical line to couple said electrical energy indicative of said image.

80. (original) A method as in claim 72, wherein said obtaining comprises obtaining a view from an angle relative to an axis of said endoscope, and using a mirror to reflect said view in a direction of said axis.

81. (original) A method as in claim 80, wherein said mirror reflects said image in a way that covers an entire active area of said endoscope.

82. (original) A method as in claim 80, wherein said mirror reflects said image in a way that covers only a part of an entire active area of said endoscope.

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83. (original) A method as in claim 82, further comprising obtaining another image using the active area of said endoscope other than said part of said active area.

84. (original) A method as in claim 83 wherein said endoscope includes an optical fiber, and said mirror reflects said image to only a portion of said optical fiber.

85. (original) A method as in claim 72, further comprising providing illumination for a view obtained by said endoscope.

86. (original) A method as in claim 72, further comprising allowing rotation of an area of imaging.

87.-137. (canceled)